DOCUMENT RESUME

ED 195 896 CG 014 848

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TITLE The Magnitude of Premenstrual and Menstrual Mood Changes in Adolescents.
PUB DATE Sep 79
NOTE 16p.; Paper presented at the Annual Convention of the American Psychological Association (87th, New York, NY, September 1-5, 1979).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adolescent Development; Adolescents; Affective Behavior; Affective Measures; *Age Differences; *Anxiety; *Biological Influences; *Depression (Psychology); *Females; Psychological Patterns
IDENTIFIERS *Menstruation; *Moods

ABSTRACT

Frequent mood changes in adolescents are often attributed to the influence of shifting hormone levels. The presence and magnitude of menstrual-related mood changes in adolescent women were examined in 10th and 11th grade females (N=158) who completed the Menstrual Distress Questionnaire (MDQ). Self-reports of the onset date for the next two menstrual periods identified menstrual cycle phases. During subsequent testings, subjects completed the State-Trait Anxiety Inventory and the Depression Adjective Checklist. Subjects (N=29) tested within four days preceding the onset of their menstrual periods were designated as the premenstrual group; those (N=23) tested during the first four days of their menstrual periods comprised the menstrual group. Males (N=29) served as a control group. Adolescent women showed no increased anxiety or depression during either the premenstrual or menstrual phases of the menstrual cycle. Although no significant mood changes were found for the premenstrual, menstrual, or male groups, the women did complain of menstrual distress. Results suggest age is a factor in premenstrual mood changes as well as in the incidence of premenstrual and menstrual complaints. (NRB)

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The Magnitude of Premenstrual and Menstrual Mood Changes in Adolescents

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CG 014848

Paper presented at the meeting of the American Psychological Association, New York, September 1 - 5, 1979.

CN 002980

Abstract

The magnitude of premenstrual and menstrual mood changes in adolescent women was assessed using standardized measures of depression and anxiety. Of the 158 female high school students tested, 29 were identified as premenstrual and 23 as menstrual during one of two testing sessions. Premenstrual and menstrual test scores were compared with those obtained during the intermenstrual phase of the cycle. Cycle phase had no apparent effect on mood in this age group. Premenstrual and menstrual state anxiety and depression mean scores were almost identical to those obtained midcycle. A control group of males also showed no significant difference in mood.

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The Magnitude of Premenstrual and Menstrual Mood Changes in Adolescents

Premenstrual mood changes have been reported fairly consistently in adult women (Bardwick, 1971; Benedek, 1959; Benedek & Rubenstein, 1939; Dalton, 1964; Golub, 1976; Ivey & Bardwick, 1968; Janowsky, Gorney, & Kelley, 1966; Kessel & Coppen, 1963; Kutner, Phillips, & Hoag, 1971; Kutner & Brown, 1972; Lloyd, 1963; McCance, Luff, & Widdowson, 1937; Moos, Kopell, Melges, Yalmo, Lunde, Clayton, & Hamburg, 1969; Paige, 1971; Pennington, 1957; Sherman, 1971). However, the validity of some of this research has been questioned and there have been some studies which failed to find cyclic changes in mood (Parlee, 1973; Swandby, Note 1; Wilcoxin, Schrader, & Sherif, 1976). One source of this inconsistency may be age differences in the populations studied. In an attempt to address this problem, Golub (1976) studied women over the age of 30 using standardized state measures of depression and anxiety and demonstrated that a significant mood change did occur, but that the magnitude was small and sharply different from levels seen in psychiatric illness or reactions to unusual stress.

It has been suggested that adolescents are disturbed by frequent mood swings and these changes in mood are often attributed to the influence of shifting hormone levels (Peterson, Note 2). The adolescent female then presumably would carry the added burden of mood changes attributable to menstrual cycle changes.

But does she? There have been no studies solely of adolescents in which depression and anxiety have been measured repeatedly over the menstrual cycle. This study was designed to determine the presence and the magnitude of menstrual cycle related mood changes in adolescent women using standardized state measures of depression and anxiety. Confusion between premenstrual and menstrual effects, which has limited other studies (Parlee, 1973; Sommer, 1972), was avoided by confining the premenstrual observations to the four days before the onset of menstruation. Menstrual phase observations were made in the first four days after its onset.

Method

Subjects

One hundred fifty-eight tenth and eleventh grade, female students served as subjects. All were volunteers contacted at an urban, parochial high school. Subjects were told that this was an investigation of the menstrual experience of high school girls and were given the Menstrual Distress Questionnaire by one of the experimenters. The term "distress" was eliminated from the heading of the test in an attempt to avoid stereotypically determined responses reflecting negative attitudes. Subjects were also asked to report the actual date of onset of their next two menstrual periods. They could comply by placing an index card with the necessary information in a conveniently located box, or by signing their names on a calendar in the girls' locker room. When necessary, subjects were also contacted

in person or by telephone to determine the onset of menstruation. This information permitted identification of menstrual cycle phase at the time of subsequent mood testing sessions.

Procedure

About three weeks after the administration of the MDQ to the female subjec the State-Trait Anxiety Inventory (STAI) and the Depression Adjective Check List (DACL), Form A were administered to all of the male and female students attending sophomore and junior classes on the day of testing. The tests were given during class time by regular classroom teachers. The students were told that a psychology research team would be comparing the responses of high school students with those of college students and older adults. Exactly two weeks later, the A-State and DACL, Form D were administered under similar conditions. No connection was made at any time between these testing sessions and the menstruation study.

Tests and Questionnaires

Menstrual Distress Questionnaire (MDQ). The MDQ (Moos, 1969) assesses menstrual cycle symptoms during the premenstrual, menstrual, and intermenstrual phases of a woman's most recent cycle. The questionnaire is comprised of 47 symptoms which are grouped into eight factor analytically derived scales: pain, concentration, behavioral change, autonomic reactions, water retention, negative affect, arousal, and control.

Depression Adjective Check List (DACL). The DACL (Lubin, 1967) is a brief, reliable, and valid measure of self-reported

transient depressive mood. The lists consist of 32 adjectives connoting varying degrees of depression and elation. Forms A and D with an intercorrelation of .90 were used. Form A was administered at the first testing session and Form D at the second.

State-Trait Anxiety Inventory (STAI). The STAI (Spielberger, Gorsuch, & Lushene, 1970) consists of two separate 20 item self-report rating scales measuring state and trait anxiety. Instructions on the state scale require that the examinee report how she feels at the time of administration, whereas the trait scale instructions ask that she indicate how she generally feels.

Results

The 29 subjects found to be within the four days preceding the onset of their next menstrual period at one of the mood testing sessions were designated as the premenstrual group (Group 1). The 23 subjects found to be tested during the first four days of menstruation were designated as the menstrual group (Group 2). In addition, a comparable group of 29 males was randomly selected from those tested to serve as a control group (Group 3).

Within-group comparisons were done for each group using correlated t tests to compare premenstrual and intermenstrual, and menstrual and intermenstrual, scores on the mood variables. No significant difference in anxiety or depression as measured by the A-State and DACL was found between premenstrual and intermenstrual testings for the 29 subjects comprising Group 1.

In addition, no significant difference was found in anxiety and depression between menstrual and intermenstrual testings for the 23 subjects in Group 2. Table 1 shows that the DACL and A-State scores of Group 1 during the premenstrual and intermenstrual phases were almost identical. Similar very small differences were found for the menstrual and intermenstrual phases for Group 2. Group 3, the males, similarly tested twice, also showed no significant difference in mood across the two sessions.

Insert Table 1 about here

Although the standardized state measures showed no significant changes in mood for either the premenstrual, menstrual, or male control groups, the women did complain of menstrual distress in the MDQ. A one-way analysis of variance with three conditions was done for the MDQ scores of the total female subject population (N=158). Significant differences attributable to cycle phase were found on all except the arousal and control scales (See Table 2). Further, contrasts between each two of the three cycle phases demonstrated that complaints were greatest for the menstrual phase of the cycle and the most troublesome symptom was pain.

Negative affect scores during the menstrual phase of the cycle were significantly higher than both the premenstrual and intermenstrual scores. However, unlike studies of older women, premenstrual negative affect scores were not significantly higher

than intermenstrual scores.

Insert Table 2 about here

Discussion

The adolescent women subjects in this study did not show increased anxiety or depression during either the premenstrual or menstrual phases of the menstrual cycle as measured by the DACL and STAI A-State scale. Mean scores were practically unchanged over the two week testing interval. Adolescent women appear to be different from women over 30 who have been reported to show significant mood changes in the premenstrual phase of the cycle using the same tests (Golub, 1976). This study indicates that some of the contradictory findings in the literature about menstrual cycle mood changes have resulted from age differences among subjects. It is also notable that the young people in this study were not less prone to mood changes because of better adjustment, since their trait anxiety scores were, if anything, higher than those of the older women.

Age also apparently influences the incidence of premenstrual and menstrual complaints. While the young women in this study did not show mood changes, they did fairly consistently complain of distress on the MDQ, particularly in the menstrual phase of the cycle. This is in keeping with Moos' (1969) observations that women under the age of 21 describe greater symptoms in the menstrual phase, while older women tend to complain more about

symptoms in the premenstrual phase. Other studies confirm the higher incidence of premenstrual complaints among women over the age of 30 (Dalton, 1964; Lloyd, 1963).

The subjects' complaints on the MDQ of mood impairment during menstruation, in the absence of mood change in the state mood scales, requires some explanation. One possibility is that the subjects were influenced by stereotypic beliefs about menstrual symptoms. Parlee (1974) has noted the occurence of stereotypic responses to the MDQ. Another possible explanation is that some kind of response generalization phenomenon occurs between pain and the other symptoms. According to this hypothesis menstrual pain of physiological origin results in complaints of pain which are then generalized to complaints of depression, irritability, and impaired function. Thus complaints of mood disturbance represent pain derivatives. Supporting this hypothesis is Moos' report of significant positive correlations between the pain scale and other scales on the MDQ, notably negative affect, concentration, and behavioral change (Moos, 1969). Mood complaints in younger women may be secondary to their dysmenorrhea.

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Table 1

Depression and Anxiety Scores

Subjects		Mean Scores		
		DACL	A-State	A-Trait
Group 1	Premenstrual	8.93	41.41	44.51
	Intermenstrual	8.82	41.79	
Group 2	Menstrual	6.60	40.82	40.65
	Intermenstrual	6.13	41.56	
Group 3	Males	8.37	41.58	41.93
		6.79	40.06	
Adult Women[a]				
	Premenstrual	9.30	38.10	34.12
	Intermenstrual	6.84	33.64	34.64

[a]from Golub, 1976

Table 2

Comparisca of Mean MDQ Scale Scores

Across Cycle Phases

Scale	Cycle Phase: Menstrual Mean	S.D.	Premenstrual Mean	S.D.	Intermenstrual Mean	S.D.	F
Pain	17.84	6.52	13.93	7.01	11.95	6.76	29.33**
Concentration	12.89	6.02	11.12	4.84	11.31	7.87	3.49*
Behavior Change	10.36	4.44	8.30	4.18	7.62	3.69	17.67**
Autonomic Reactions	6.78	3.33	5.99	3.24	5.68	3.27	4.51*
Water Retention	8.29	3.50	7.15	3.66	6.25	2.96	13.60**
Negative Affect	17.66	7.58	14.66	7.57	13.64	7.11	11.59**
Arousal	8.26	4.12	7.92	4.09	8.21	4.56	0.28
Control	9.06	4.65	8.27	3.98	7.95	3.73	2.88

*$p < .05$

**$p < .001$